WLAN-Minder User Manual

TOTAL AAA SECURITY FOR Wireless and Wired LAN

NanoGlobes Ltd

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WLAN-Minder

User Manual

WARRANTY

NanoGlobes Ltd warrant the WLAN-Minder RADIUS based control centre unit against defective materials or workmanship for a period of one year from the date of original purchase.

This warranty does not apply if the WLAN-Minder unit have been damaged by neglect, improper handling or by any other cause not arising directly from defective materials or workmanship.

NOTICE

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Contents

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1 Introduction

1.1 About This Manual.

This manual contains information pertinent to the configuration of a Wireless LAN security system based on 802.1x authentication protocols. The security system is based on using smart tokens in conjunction with WLAN-Minder client software [Ref 1], and a central authentication service - provided by the WLAN-Minder.

The manual covers the installation of the WLAN-Minder, and the issuing of security tokens such as smart cards and USB eTokens.

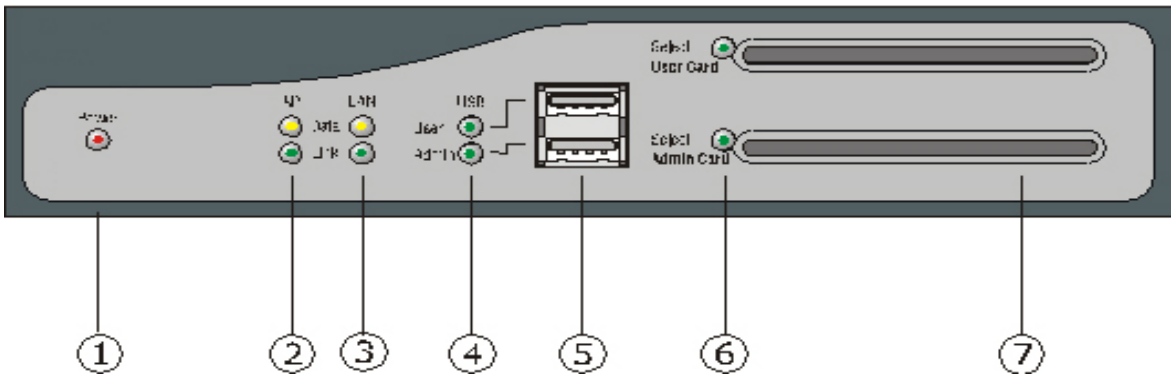
The WLAN-Minder solution is designed to operate with Wireless LAN components that support the IEEE 802.1x Extensible Authentication Protocol. Nearly all of the newer generation of Wireless LAN products (Client adapters and Access Points) support this protocol. However certain low cost units and earlier designs do not support the IEEE 802.1x protocol, these products cannot be used in a WLAN-Minder solution. In general all components that have been certified by the Wi-Fi Consortium as being WPA compliant should operate with the WLAN-Minder.

Only guidance is given in this manual about how the Access Points should be configured. Each manufacturer will have their own menus and user interfaces for configuration. Please refer to the Access Point User Manual for obtaining information on setting up the Access Point unit.

1.2 WLAN-Minder Features

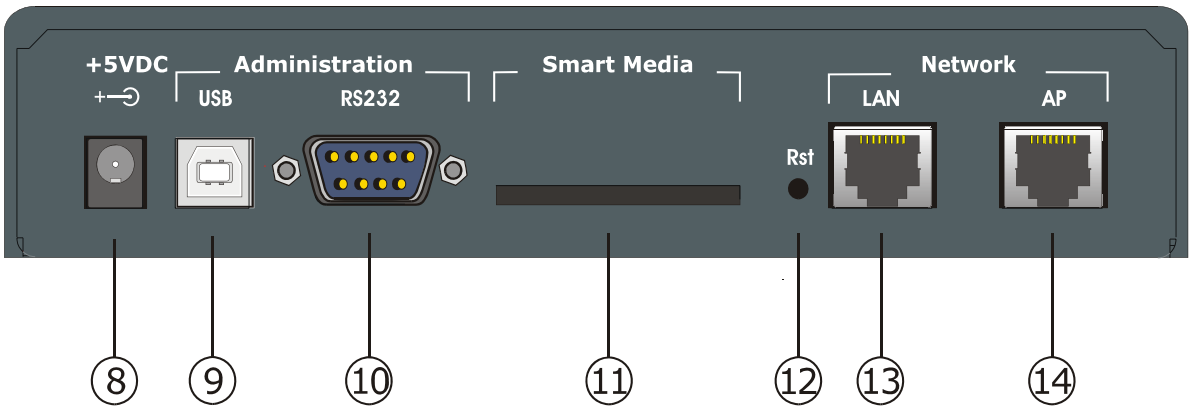
- Control of Wireless LAN users access to a wired network.
- Plug-and-play solution: no server software installation required.
- Support for IEEE 802.1x compliant EAP-TLS mutual authentication protocol. Authenticating the client to the network, and the network to the client.
- Automatic generation of PKI root certificate and user certificates.
- Simple Web based administrator's interface.
- ISO7816S smart card reader-writer built-in for issuing smart cards
- USB interface built-in to support USB based eTokens.
- RS232 Port for attaching mini serial printer for issuing user PIN numbers. (Option)
- Smart media socket for providing backup/restore of server configuration settings.

1.3 WLAN-Minder Front Panel Features



(1) Power On Indicator
(2) Access Point Network: Link and Traffic Status LEDs
(3) Local Network: Link and Traffic Status LEDs.
(4) eToken select LEDs used to indicate a USB eToken should be inserted.
(5) USB sockets for connecting eTokens to be initialised or read.
(6) Dual colour LEDs used to Indicate a smart card should be inserted or is powered up.
(7) Smart card reader/writer slots.

1.4 WLAN-Minder Back Panel Features



(8) Power Socket +5VDC centre +.
(9) USB device interface for unit configuration from a host PC.
(10) RS232 Serial I/O interface for unit configuration [57600:8:N:1]
(11) Smart Media reader for configuration back up and restore.
(12) Reset button.
(13) Local Area Network Ethernet connector 10/100Mbps.
(14) Access Point Network Ethernet connector 10/100Mbps.

1.5 Using Smart Cards with the WLAN-Minder

Smart cards are used to store a user's identity and his network configuration information. The smart card is used to verify the identity of the owner by checking the PIN number entered by the owner.

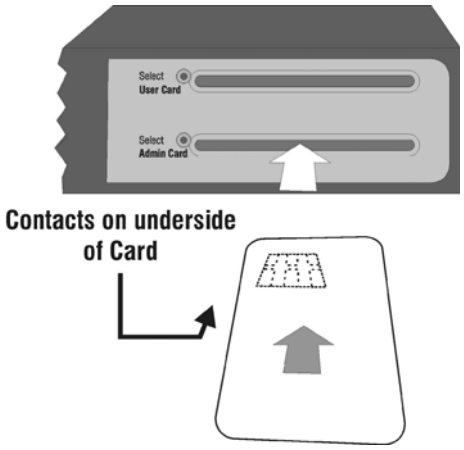
The WLAN-Minder supports two ISO-7816 compliant smart card readers. They are labelled as [**User**] and [**Admin**] respectively. Beside each card slot is a bi-colour LED, which is used to signal the following states when the web browser interface is in use:

- ▣ A GREEN flashing LED by a card slot is a prompt for the user to enter a smart card into that slot.

- ▣ A RED LED indicates a card is inserted and powered up. The user should NOT remove the smart card when the RED LED is lit.

INSERTING THE SMART CARD

The contacts surface of the smart card should be face down, and the card inserted with the contacts at the edge closest to the centre of the WLAN-Minder unit.



1.6 Using eTokens with the WLAN-Minder

USB eTokens may be used as an alternative to a smart card for storing a user's identity and network configuration information.
The WLAN-Minder supports two USB interfaces capable of supporting an eToken. They are labelled as [**User**] and [**Admin**] respectively. Beside each USB socket is an GREEN LED.

- ▣ A GREEN flashing LED by a USB socket is a prompt for the user to enter an eToken. The Flashing will stop when the eToken is inserted.

ENSURE the CORRECT ORIENTATION is used when INSERTING the eToken.

2 Installing the WLAN-Minder.

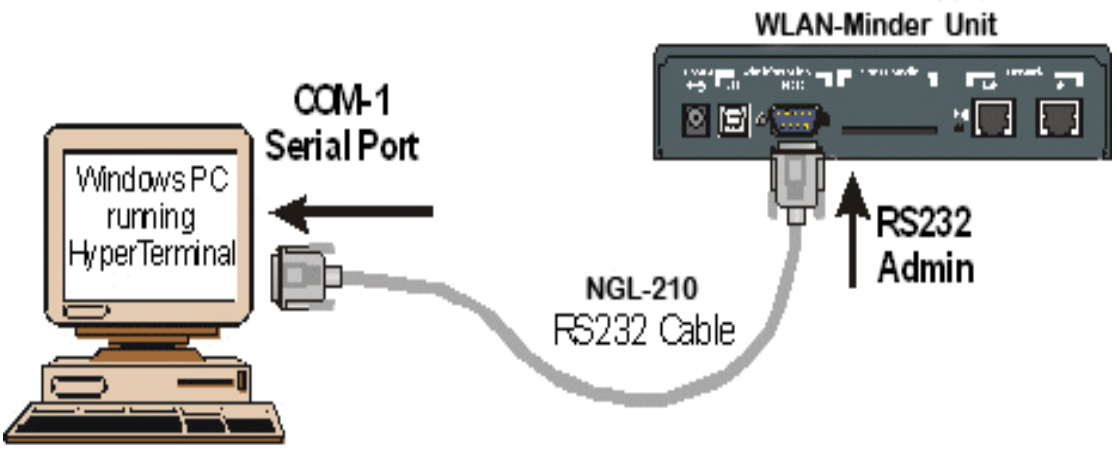
- The WLAN-Minder must first be given a valid IP network address before it can be placed on the network. This is achieved by using the BIOS menu as outlined in this section. Once the IP address has been configured all further configuration is performed using a web browser interface.

- The BIOS menu must be used to set the IP address. This menu can only be entered from the SERIAL RS232 port on the read panel of the WLAN-Minder.

2.1 Configuring the IP Address.

- Connect the WLAN-Minder Administrator RS232 port to a serial COM port on a PC using the provided NGL-210 cable (9-D Female to 9-D Female).

- Connect one end of the supplied RS232 Cable to the connector labelled [**Administration RS232**] on the rear panel of the WLAN-Minder.



- Connect the other end of the cable either to a Serial Terminal or to the COM1 (or COM2) port of a PC running a terminal emulation program [See Appendix 6.4]. The Terminal should be configured for:

  [Baud: **57600,** Data Bits: **8,** Parity: **None,** Stop Bits: **1,** Flow Control: **None]**

- Plug in the supplied Power adapter into a Main's power outlet, then connect the power jack on the flying lead to the WLAN-Minder power connector on the rear panel.

- The RED Power LED will light and the GREEN ADMIN CARD LED will flash. The following prompt will appear on the terminal.

```
------------------------------------------------------------
     BIOS v1.11.1 (c) 2005 NanoGlobes Ltd.
------------------------------------------------------------
 If you want to skip the BIOS command mode, type enter or
 wait a few seconds. After this, the system will boot
 automatically.


BIOS(0)>
```

- NOTE: While logged in to the BIOS menu system the GREEN ADMIN CARD LED will continue to flash.

- Enter the text: **`login`**<Enter>

- NOTE: **The login command will only be accepted while the GREEN smart card LED is flashing. (Approx. 5 seconds from RESET/Power ON).**

```
------------------------------------------------------------
     BIOS v1.11.1 (c) 2005 NanoGlobes Ltd.
------------------------------------------------------------
 If you want to skip the BIOS command mode, type enter or
 wait a few seconds. After this, the system will boot
 automatically.


BIOS(0)>login
Password: ********
BIOS(1)>
```

- At the password prompt: **`password`**<Enter>

- At the BIOS prompt enter the text: **`setup`**<Enter>

- The user will be prompted for the password. (Default is "**`password`**")

- The BIOS will prompt for the IP Address, the IP Subnet Mask and the IP Gateway address.

- The user should set the IP Address and IP Subnet mask to a suitable value to be compatible with the network that the WLAN-Minder is to be attached to.

- The unit then prompts for a TFTP Server path and file name, and the IP Address of the TFTP server. These parameters may be ignored at this time. **Just use the <Enter> key to skip past these prompts.**

```
BIOS(1)>setup

Enter password : ********

LAN IP         [192.168.1.100] ? 192.168.1.66
LAN MASK       [255.255.255.0] ? 255.255.255.0
LAN GATEWAY    [192.168.1.1]   ? 192.168.1.200
TFTP Server IP [192.168.1.33] ?
TFTP Home Directory [/home/tftp] ?

Write System Configuration Parameters to Flash ...Done!

BIOS(2)>
```

- The settings are then automatically written to flash memory within the WLAN-Minder.

- The user may view the settings to confirm the unit is configured correctly by using the " **view**" command.

```
BIOS(2)> view
Read System Configuration Parameters from flash ...Done!

+================================================+
|           System Configuration Table          |
+================================================+
|                System Parameters               |
|  Vendor Name   : NanoGlobes Ltd.               |
|  Host Name     : NGLMinder_802328              |
+------------------------------------------------+
|                Upgrade Parameters              |
| TFTP home      : /home/tftp                    |
| TFTP Server    : 192.168.1.33                  |
+------------------------------------------------+
|            LAN Configuration Parameters        |
|  LAN MAC       : 00:c0:bf:80:23:28             |
|  WAN/AP MAC    : 00:c0:bf:90:23:28             |
|  LAN IP        : 192.168.1.66                  |
|  LAN SUBNET    : 255.255.255.0                 |
|  LAN Gateway   : 192.168.1.200                 |
+================================================+


BIOS(3)>
```

- Once the IP settings have been set, it is STRONGLY RECOMMENDED that the user change the BIOS Password to prevent unauthorised changes to the IP settings. Of the WLAN-Minder.

- For the changes to take effect and to restart the unit, either cycle the power to the unit (Power Off / On) or depress and release the RESET switch which is accessible on the rear panel of the WLAN-Minder unit.

2.2 Setting the BIOS Password.

- The user should change the default BIOS password to protect the configuration of the WLAN-Minder.
- To change the BIOS password the user must enter the BIOS menu in the manner described in 2.1
- At the prompt enter the password command: **passwd**
- The user is prompted to enter the **existing** password. (The manufacturing default password is "**password**").
- Then the user is prompted to enter his new password twice. Note the password letters are not echoed directly, only a "*****" character is displayed for each character typed.
- If the two password entries do not match each other a message *"Input Error - Password not changed."* is displayed. The user must run the **passwd** command again.

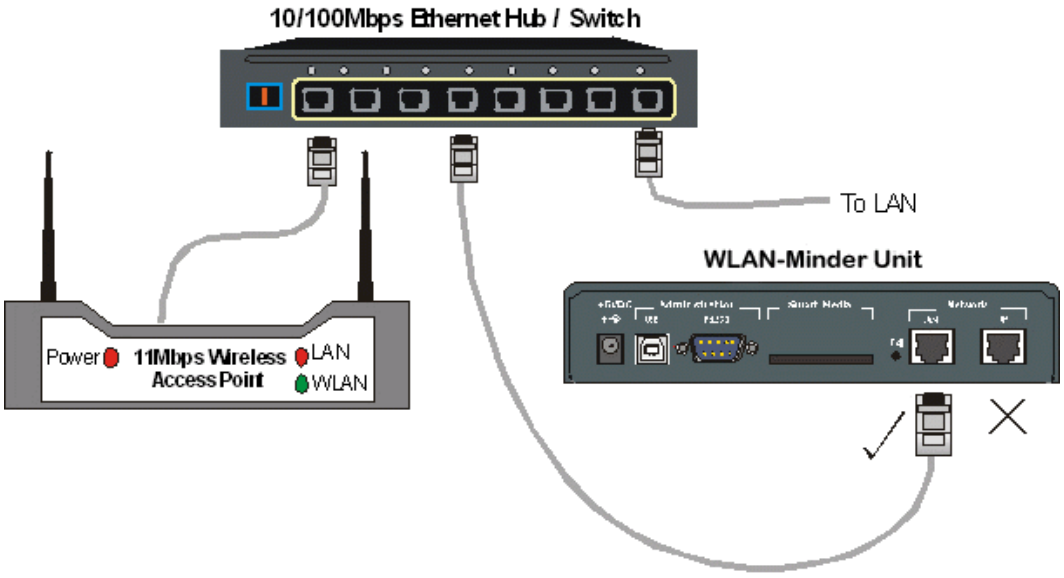
```
------------------------------------------------------------
     BIOS v1.11.1 (c) 2005 NanoGlobes Ltd.
------------------------------------------------------------
 If you want to skip the BIOS command mode, type enter or
 wait a few seconds. After this, the system will boot
 automatically.


BIOS(0)> login
Password: ********
BIOS(1)> passwd

First enter the current password ...

Password: ********
New password (max 15 characters): ********
Confirm new password            : ********

BIOS(2)>
```

2.3 Attaching The WLAN-Minder to the Network

- The WLAN-Minder should only be attached to the user's LAN once the IP address has been configured as outlined in section 2.1,

- The WLAN-Minder should be connected by a CAT-5 Ethernet cable directly to a 10/100MB Ethernet Hub or Switch.

- The connection must be made using the connector labelled [**Network LAN**] on the rear panel of the WLAN-Minder unit.



- Check the **LAN Link** light on the front panel of the WLAN-Minder lights up (GREEN).

- The user may confirm that the Ethernet link is working by issuing a PING command to the WLAN-Minder from another computer on the same subnet network.

```
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\>ping 192.168.1.66          <---- Use IP address set in the WLAN-Minder

Pinging 192.168.1.66 with 32 bytes of data:

Reply from 192.168.1.66: bytes=32 time=10ms TTL=255
Reply from 192.168.1.66: bytes=32 time<10ms TTL=255
Reply from 192.168.1.66: bytes=32 time<10ms TTL=255
Reply from 192.168.1.66: bytes=32 time<10ms TTL=255

Ping statistics for 192.168.1.66:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  10ms, Average =  2ms
```

- If the **`Ping`** fails to elicit a response from the WLAN-Minder, the user should check**:**

- The Ethernet cable is plugged in the **LAN Network** connector on the WLAN-Minder.
  - The IP Address of the WLAN-Minder is set correctly.
  - The IP Sub Net Mask of the WLAN-Minder is set correctly.
  - The WLAN-Minder LAN LINK LED is lit GREEN.
  - The WLAN-Minder DATA LED flashes YELLOW when data is present on the network.
  - The Computer issuing the PING is on the same Subnet as the WLAN-Minder.
  - The Computer issuing the PING is not behind a firewall.

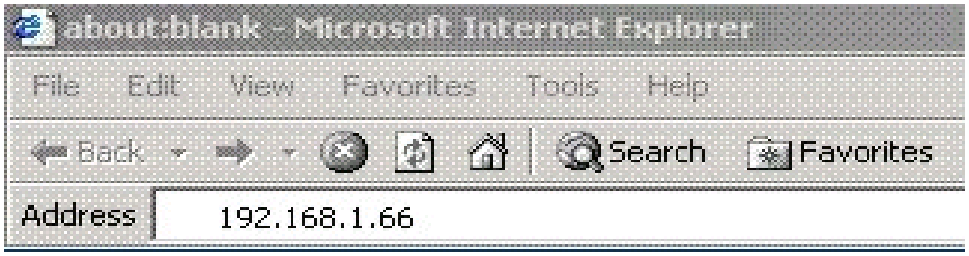
- When successful communication has been established with the WLAN-Minder, the remaining configuration can be completed from a web browser such as Microsoft's Internet Explorer, or Netscape Navigator etc.

- Simply start the web browser on a computer attached to the same subnet network as the WLAN-Minder, and in the Location bar of the web browser enter the IP address of the WLAN-Minder (e.g. **http://192.168.1.66**). The WLAN-Minder menu system will then be displayed.

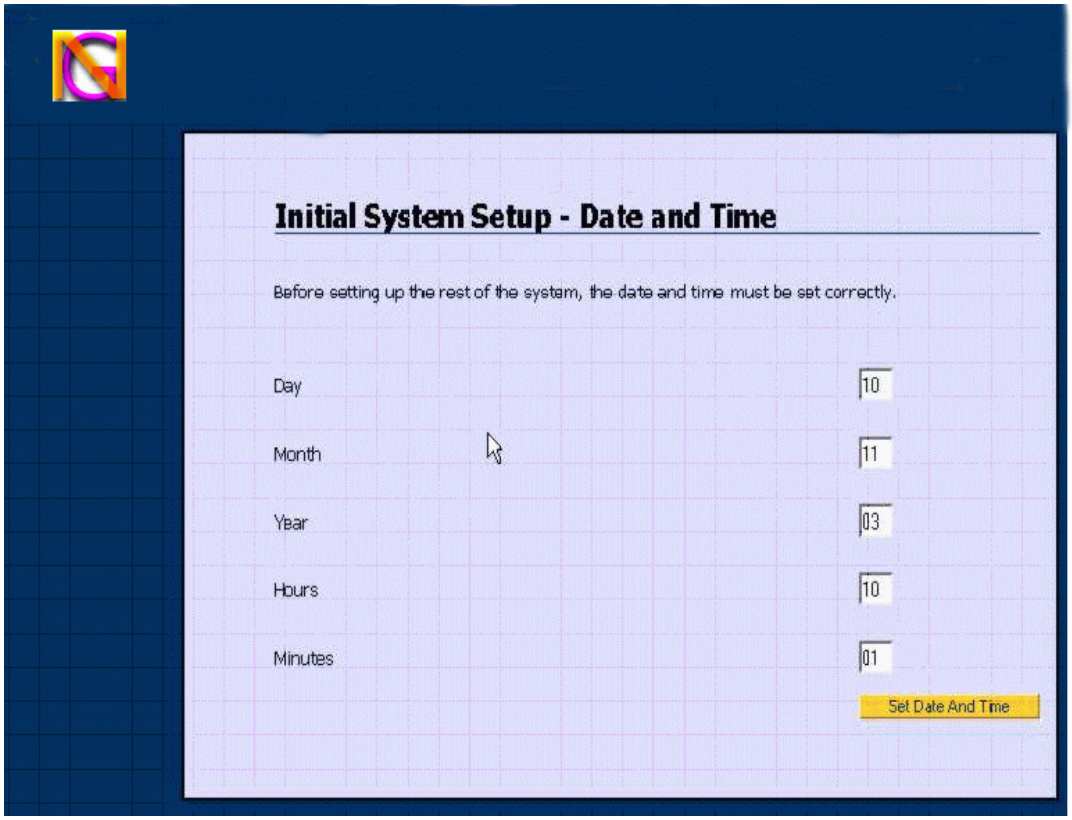
3 Initialising the WLAN-Minder - Creating the Root CA System.

A new WLAN-Minder must first be initialised with a Root CA certificate system[1]. When the unit is first powered on it will automatically enter the correct mode for the administrator to setup the Root CA system.

- ▣ Ensure the WLAN-Minder is attached to the LAN as described in section 2.3
- ▣ Start a web browser on a computer attached to the same subnet network as the WLAN-Minder.
- ▣ In the Location bar of the web browser enter the IP address of the WLAN-Minder.



- ▣ After a few seconds, the date and time screen will be displayed.

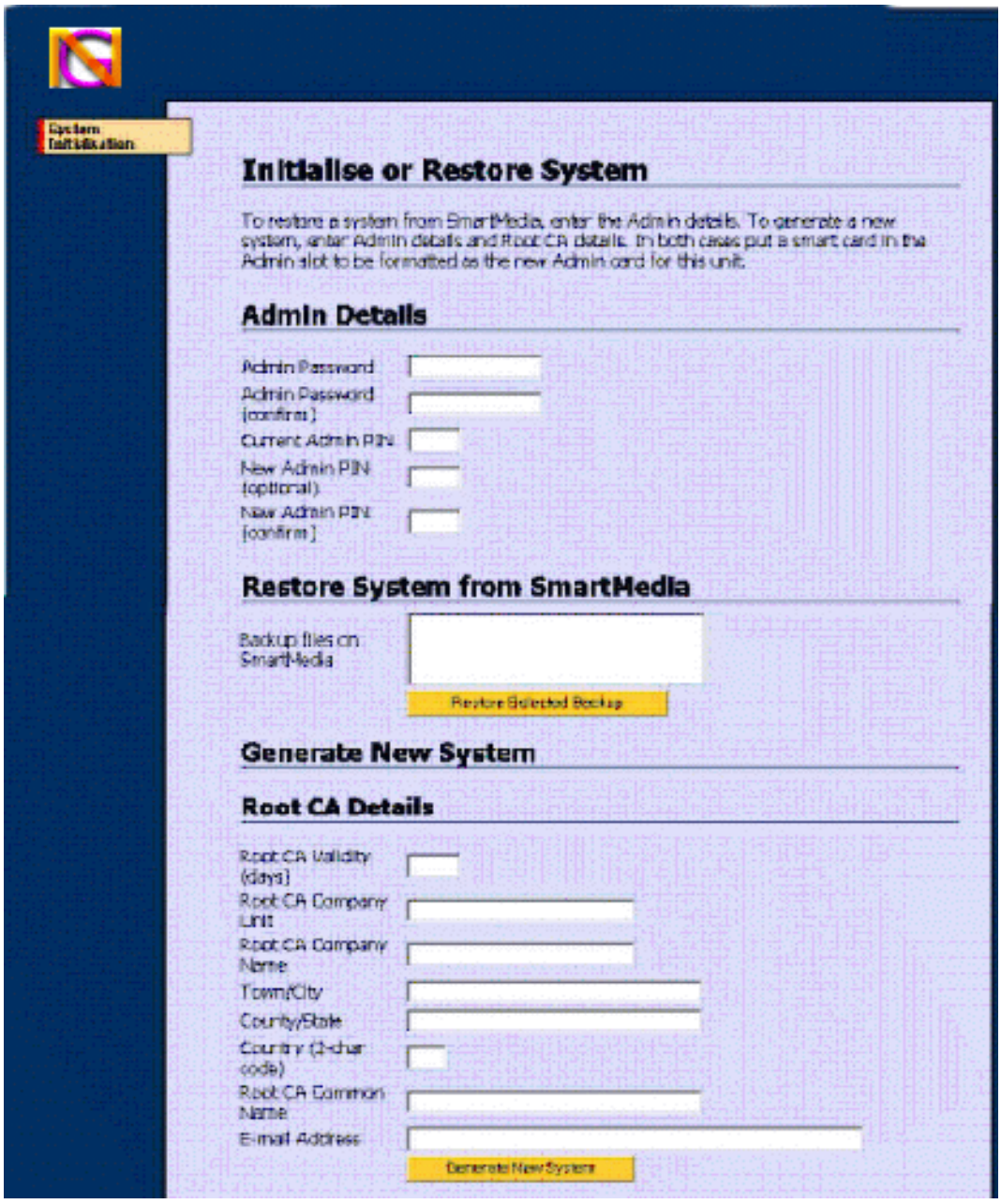


[1] Effectively the Root CA Certificate is a master certificate used to identify the WLAN-Minder and it is used to electronically sign the User certificates generated by the WLAN-Minder unit.

- The user must enter the correct date and time. This is an important operation as the date/time entered is used as a reference in checking the validity of certificates. **See Section 5.8.** Each parameters is two numeric digits.

- With the correct date and time entered click the **Set Date and Time** button.

- The **System Initialisation** menu screen will then be displayed.



- When initialising the system for the first time or for generating a new certificate system, the administrator should first **insert the administrator smart card** and then complete the **Admin Details** section as follows:

Admin Password: Up to 16 characters. In the range ‘a’..’z’, ‘A’..’Z’, ‘0'..’9', “%&*+@~?#{}!”. Note the Alpha characters are case sensitive - so ‘A’ is treaded as different character from ‘a’.

This password is used to provide the security for the backup and restore facility of the WLAN-Minder.

Admin Password. (Confirm) Enter the Password a second time, in order to check the correct value is stored by the system.

Admin Smart Card PIN The PIN number of the Administrator card. If this is a blank card direct from the manufacturer the manufacturer will indicate what the default PIN code is (Typically 0000). If the card is a used card, then the Administrator must have access to the PIN code either from their records or the issuing department.

New Admin PIN If the Administrator wishes to change the current PIN, then the new PIN to be used should be entered in this field. This is optional - the Administrators does not have to change the PIN.

New Admin PIN (Confirm) If the Administrator has chosen to change his PIN, the new PIN must be entered a second time for confirmation.

¤ With the **Admin details** entered the administrator should then move to the **Root CA Details** section of the display and enter the following information:

Root CA Validity Period The Number of **DAYS** the newly created certificate system on the WLAN-Minder is to be valid for. When this value expires ALL users of the system will have to have their certificates re-issued.

5 Years	~	1825 Days
3 years	~	1095 Days
2 Years	~	730 Days
1 Year	~	365 Days

NOTE: Each user certificate will have its own validity period independent of this setting. (Except a user validity period cannot exceed the value set here.)

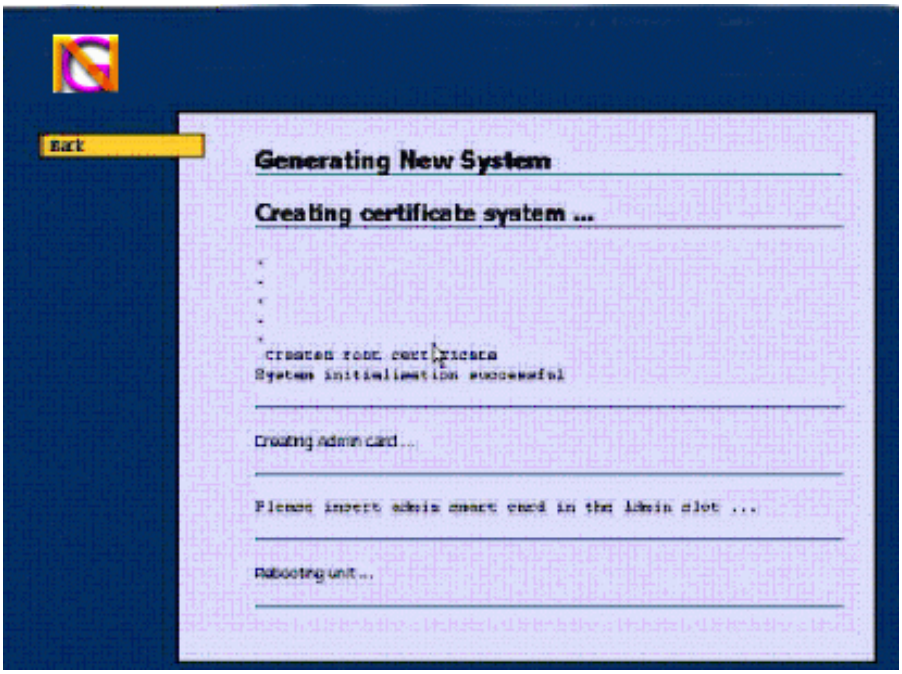
WARNING: Once a system has been generated, its validity period cannot be changed.

Root CA Company Unit: Alpha Numeric Eg: **`Accounts`**

Root CA Company Name:	Alpha Numeric	Eg:	**A B C Industries**
Town/City:	Alpha Numeric	Eg:	**Newbury**
County/State:	Alpha Numeric	Eg:	**Berkshire**
Country Code:	See Section 6.6	Eg:	**GB**
Root CA Common Name:	Alpha Numeric	Eg:	**ABCI_Root_CA_Server.**
	NOTE:	*No space characters should be present in the Common Name text.*	
Email Address:	Standard format	Eg:	**admin@abcind.com**

- Once the Administrator has entered the above information and checked that it is correct, the **Generate New System** button should be clicked.

- The Root CA generation process takes about 60 ~ 90 seconds to complete. The Administrator is prompted to enter the Administrator's smart card if he hasn't already done so.



- When the *Rebooting* message is displayed the user should click the **Back** button.

- The system initialisation process is now completed. The Administrator will now be able to login to the WLAN-Minder settings menu to configure the unit and create users on the system.

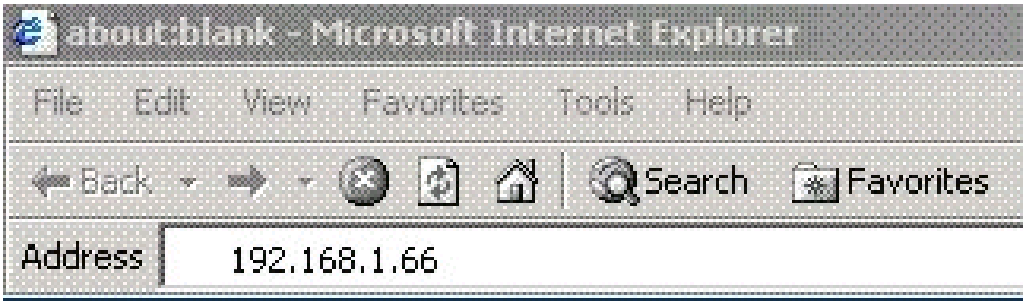
4 Configuring the WLAN-Minder.

Before a secure Wireless LAN environment can be implemented, the WLAN-Minder and the wireless Access Points must be configured.

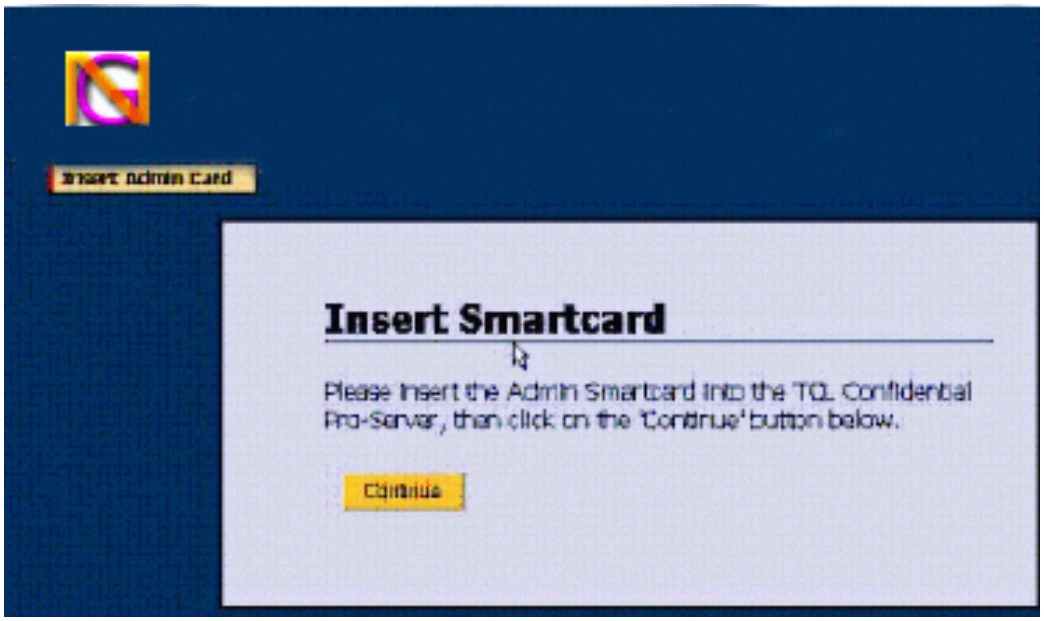
- The WLAN-Minder must be initialised with the necessary information for it to be able to communicate with the Access Point(s).
- The WLAN-Minder must be used to issue the smart cards or eTokens for each user that is going to use the system.

4.1 Logging in to the WLAN-Minder web interface.

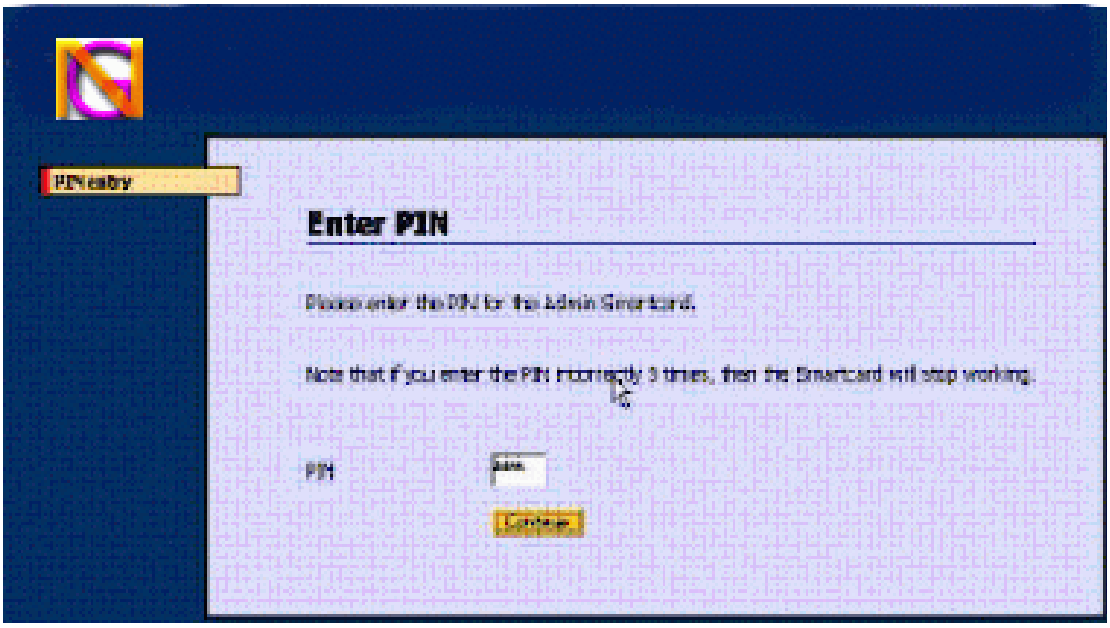
- In the Location bar of the Web browser enter the IP address of the WLAN-Minder.



- After a few seconds a screen will be presented prompting the user to enter the Administrator Smart Card (if it is not already inserted.)



- The user should then insert the smart card into the card slot labelled "**Admin Card**".
- Once the card is inserted the user should click "**Continue**".



- The user will then be prompted to enter the PIN associated with the Administrator card.
- If the correct PIN is entered, the user will see a welcome screen to the administration features of the WLAN-Minder unit. See section 4.2

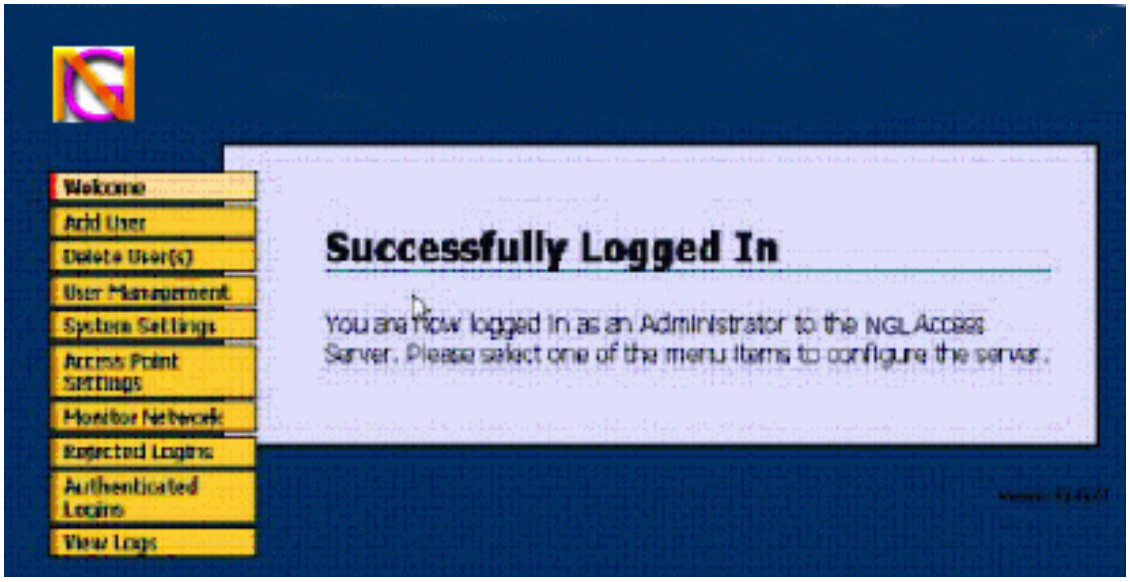
WARNING: **Repeated attempts at entering the wrong PIN will result in the Administrator card being blocked. Special tools will be required to unblock the card.**

- Start a web browser on a computer attached to the same subnet network as the WLAN-Minder.
- In the Location bar of the web browser, enter the IP address of the WLAN-Minder.
- The WLAN-Minder will display a screen requesting the user to insert his identity administrator eToken or smart card (see section 10).
- Once the smart card or USB eToken has been detected by the WLAN-Minder, the Administrator user will prompt to enter his PIN code.
- If the correct PIN code is entered the Administration Welcome Screen is displayed.

WARNING **Entering 3 (three) consecutive incorrect PIN codes will LOCK OUT the smart card. The user will not be able to use that card again until it is UNBLOCKED by an administrator**.

4.2 WLAN-Minder Welcome Menu

Once the Administrator is successfully logged in to the WLAN-Minder, the welcome screen is presented.



This screen presents access to all the control functions supported by the WLAN-Minder.

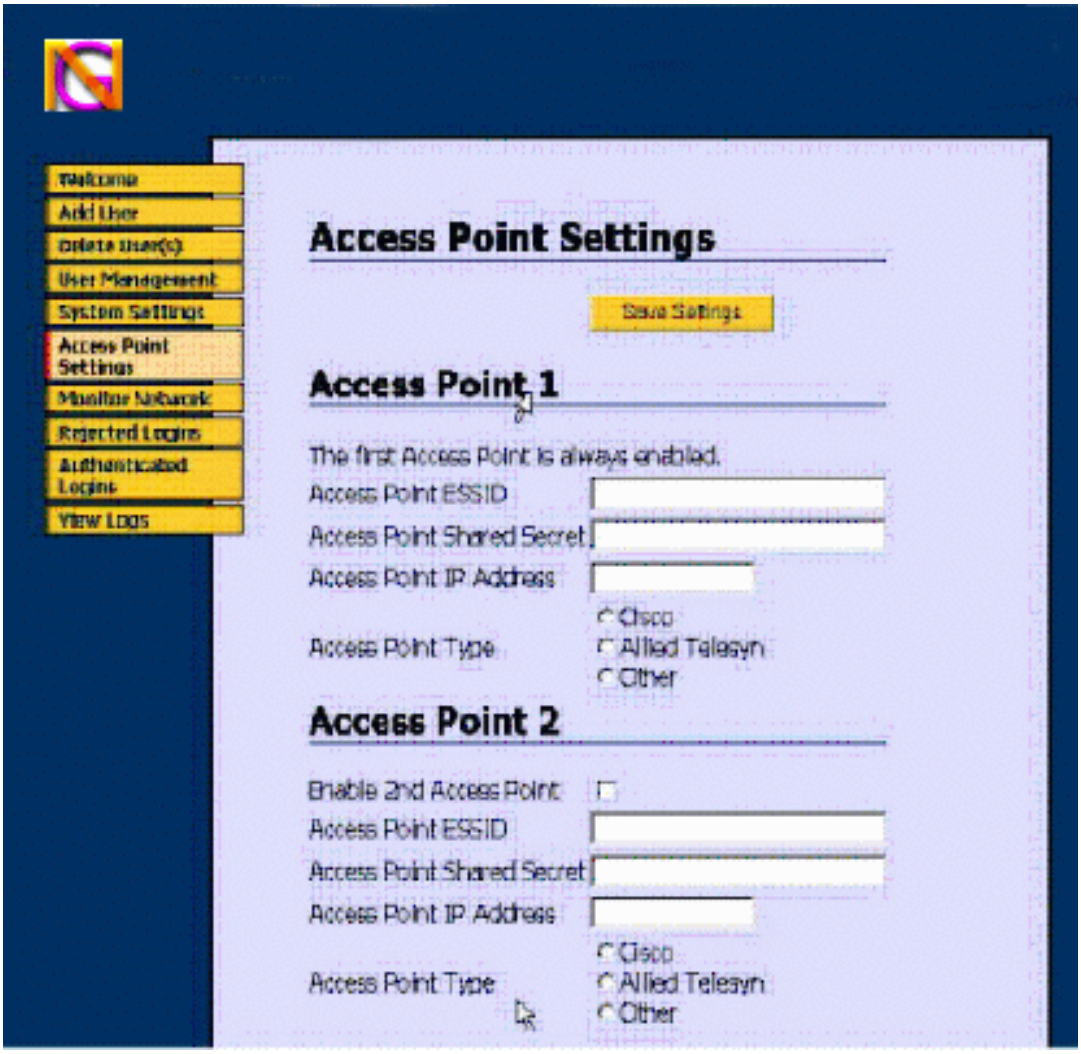
When configuring the WLAN-Minder for the FIRST time, the Administrator must perform the following actions in the order listed:

- ▣ Configure the parameters for the Access Points. [**Access Point Settings**]
- ▣ Select default token type to be used by the system smart card / eToken [**Settings**]. (This setting can be overridden each time a user is created on the system.)
- ▣ Set up the initial User accounts. [**Add User**]

The other functions provided allow the administrator to view the status and history of the connections made from the Wireless Network. In addition, existing users can be removed from the data base or temporarily barred from the network.

4.3 Configuring the Wireless LAN Access Point.

From the “Welcome” menu select the [**Access Point Settings**] option.



At least one valid access point must be defined, the first Access Point data should be entered in the **Access Point 1** form.

Additional Access Points may be configured, in the same manner as the first Access Point by using the subsequent Access Point forms displayed on this menu screen.

Note that each additional Access Point must be specifically enabled by clicking on the **Enable nth Access Point** selection box.

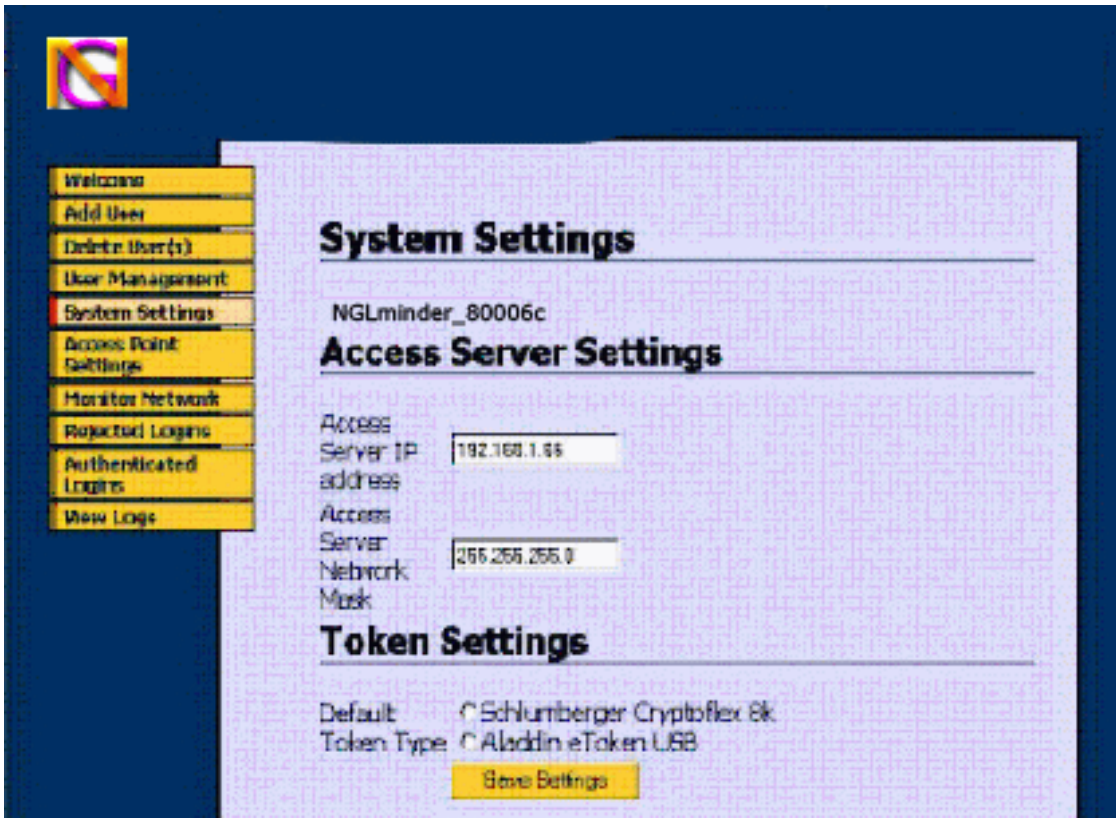
Access Point ESSID: The user should enter the name or string of characters used to identify the Wireless Network. **This must be the same value as is set in the Access Point.**

Access Point Shared Secret:	This is a secret string of characters, numbers or symbols that only the Access Point and WLAN-Minder share so that the WLAN-Minder can identify the Access Point. **This must be the same value as is set in the Access Point.**
Access Point Type:	The user should select the type of Access Point being used. If the Access Point name is not listed select **other.**
Access Point IP Address	The IP Address of the Access Server (in dotted decimal format: e.g. 192.168.1.120)
Access Point IP Mask:	The IP Mask of the Access Server (in dotted decimal format: e.g. 255.255.255.0)

Once all the Access Point parameters have been entered the [Save Settings**] button should be clicked causing the WLAN-Minder to save all Access Point parameters.**

4.4 Token Settings.

From the “Welcome” menu select the [**System Settings**] option.



The **Token Settings** selection may be used to define which type of token (smart card or eToken) the users are to be issued with. The Device selected here will be the default device that the Certificate generation software will attempt to write certificates to.

However when each user is generated the Administrator will be given an opportunity to change the default token device if required.

The [**Settings**] menu provides the Administrator with the option of selecting to implement a system based either on smart cards or eTokens.

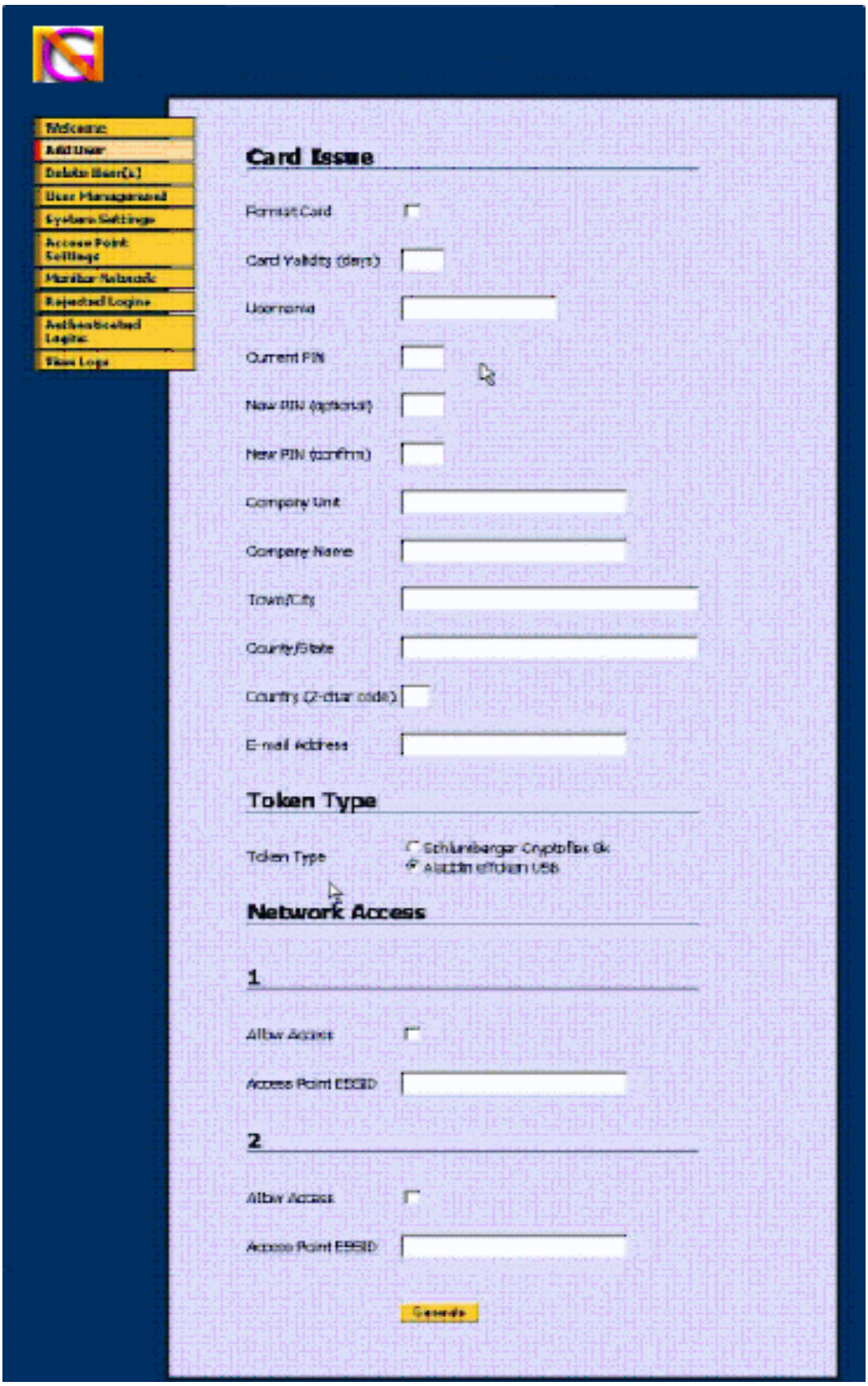
The WLAN-Minder currently supports the Shlumberger 8K Cryptoflex smart card, or the Aladdin eToken-Pro USB tokens. The Pro-Server uses this setting to be able to generate the correct data sets when user accounts are generated.

Token Type: Shlumberger 8K Cryptoflex
Aladdin USB eToken

Customers may request support for additional smart cards and tokens types, please contact our sales office for further details.

4.5 Creating User Accounts.

From the “Welcome” Menu please select the [**Add User**] option.



Format Card: Tick this item if the card to be used has already had data written to it. (If this box is not ticked and the card already contains data, an error will be reported when the Generate button is clicked.)

If the card is blank (i.e. direct from the manufacturer) there is no need to select this option.

User Name: The name of the user for whom the card is being generated. **The name must NOT contain any SPACE characters.**

¤	**A.B.C._Smith**	is a Valid name.
X	**A. B. C. Smith**	is an **INVALID** name.

Validity Period: The Period in days (from the current date) that the card will be valid for

E.g. 365 = 1 Year validity period.

Current PIN: The PIN number for the card. If this is a blank card direct from the manufacturer, the manufacturer will indicate what the default PIN code is (Typically 0000). If the card is a used card then the Administrator must have access to the PIN code either from their records or directly from the user, depending upon the Security Policy in place within the organisation.

New PIN: It is strongly recommended that when generating a new card/eToken, the PIN is changed. If the PIN is to be changed it should be entered here. If no PIN is entered, the card will retain its "Current PIN". The entered PIN is NOT echoed to the screen.

A PIN code must be 4 (FOUR) Alpha-Numeric characters:

PIN Examples: **8071, A1Z9, QPzm**

NOTE: **a PIN is CASE SENSITIVE**

Thus, the PIN "**ABCD**" **is different** to PIN "**abcd**"

New PIN (Confirm): If a New PIN has been entered it must be confirmed by typing it again in this field. The SAME value as entered in the New PIN field must be entered.

The following fields in the [**Add User**] menu are used to generate the X.509 certificate that will be stored on the security token/smart card. The entries here should reflect the identity of the organisation for which the token is to be valid

Company Unit:	Alpha Numeric	Example:	**Accounts**
Company Name:	Alpha Numeric	Example:	**A B C Industries**
Town/City:	Alpha Numeric	Example	**Newbury**
County/State:	Alpha Numeric	Example	**Berkshire**
Country:	See Section 6.6	Example	**GB**
Email Address:		Example	**a.smith@abcind.com**

Token Type: The administrator may select the type of security device to write the User record to, either a smart card or an eToken

- Shlumberger Cryptoflex 8k smart card.
- Aladdin eToken USB.

Network Access: The Network Access field allows the administrator to select which Access Points the user will be allowed to connect through.

At least ONE access Point must be selected.

The ESSID for each Access Point supported by the WLAN-Minder is listed. The Administrator should select the appropriate access points by clicking on associated “Allow Access” box.

Once all the fields have been completed in the [Add User], [Token Type] and [Network Access] page, the GENERATE button should be clicked.

The unit will then generate the Certificate containing the user’s identity and the necessary encryption keys that are to be written to the users token. Progress of this process is displayed to the user. Note it may be necessary for the Administrator to scroll down the screen to see the current stage of the generation process.

This generation process can last from 20 up to 60 seconds depending upon the amount of data to be processed.

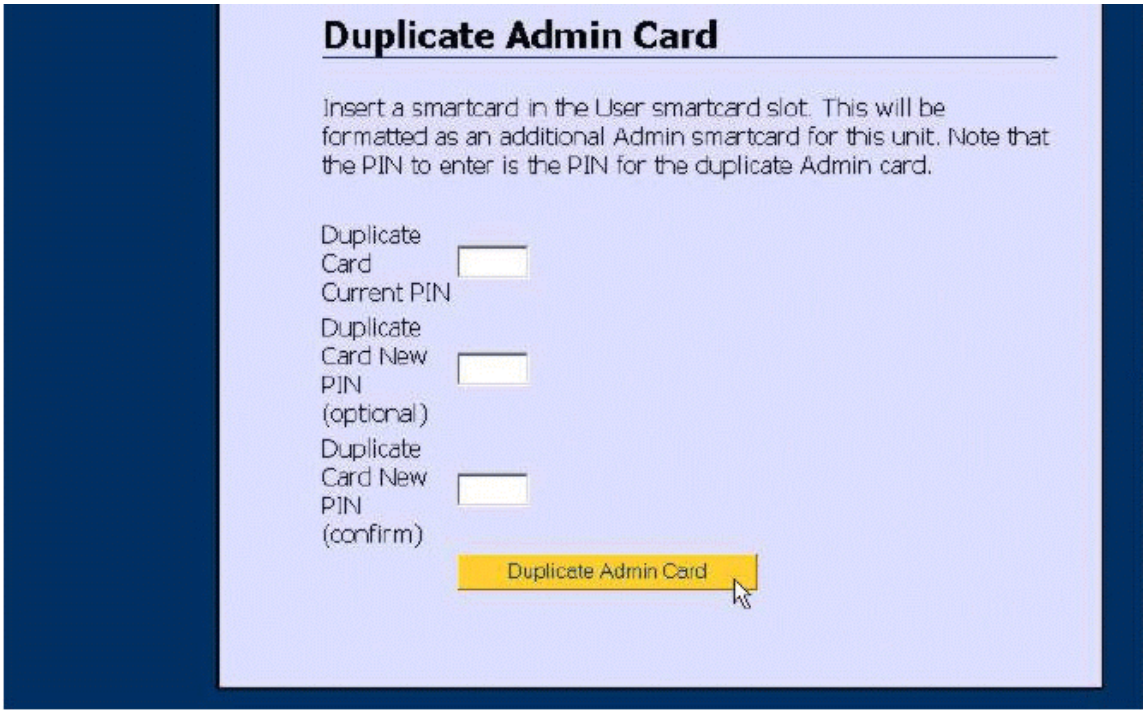
When the generation process has finished a “**Generation Complete**” message is displayed to the Administrator.

Once the “**Generation Complete**” message has been displayed the Administrator may click the BACK button to return to the [**Add User**] menu screen.

4.6 Generating a Duplicate Administration Card.

It is strongly recommended that the Administrator generates at least one spare administrator card that can be kept in a safe place as a backup administrator smart card.

Select the [System Settings] option from the main menu. Scroll to the end of the System Settings screen, where the [**Duplicate Admin Card**] can be found.



NOTE: The master administrator card must be present in the **Admin Card** slot of the WLAN-Minder unit, the new card that is to be generated as an administrator card should be inserted in the **User Card** slot of the WLAN-Minder unit.

The PIN number of the new card MUST be entered in the **Duplicate Card Current PIN** box. (If this is a new and unused card it will typically have the default PIN of 0000).

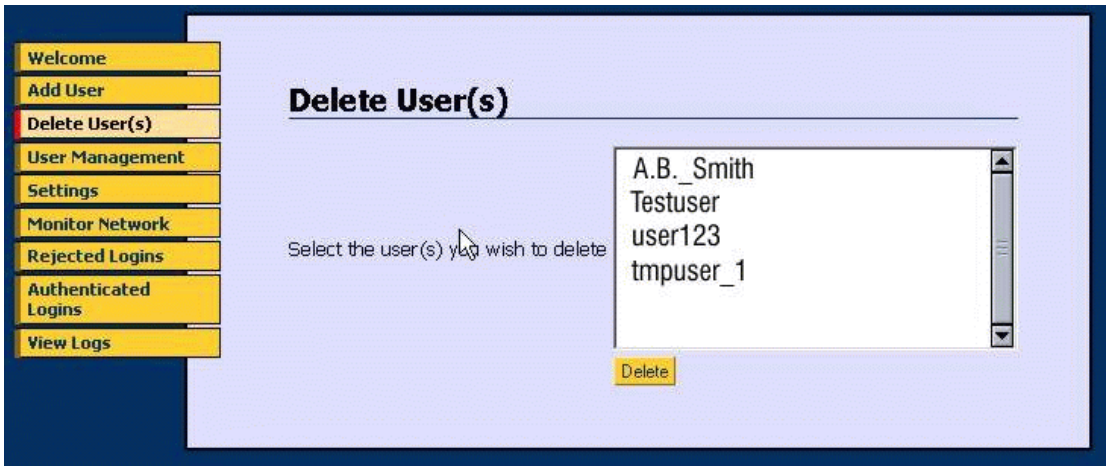
If the administrator wishes to change the current PIN of the new card to a different value, then the new PIN should also be entered (twice) in the **Duplicate Card New PIN (optional/confirm)** boxes.

With the PIN information entered click on the [**Duplicate Admin Card**] button to generate the new Administrator smart card.

5 Maintaining the WLAN-Minder.

5.1 Deleting User Accounts

To permanently remove a user from the system the [**Delete User(s)**] option should be selected from the “Welcome” screen menu.



The “Delete User(s)” menu will list all users currently registered with in the WLAN-Minder system.

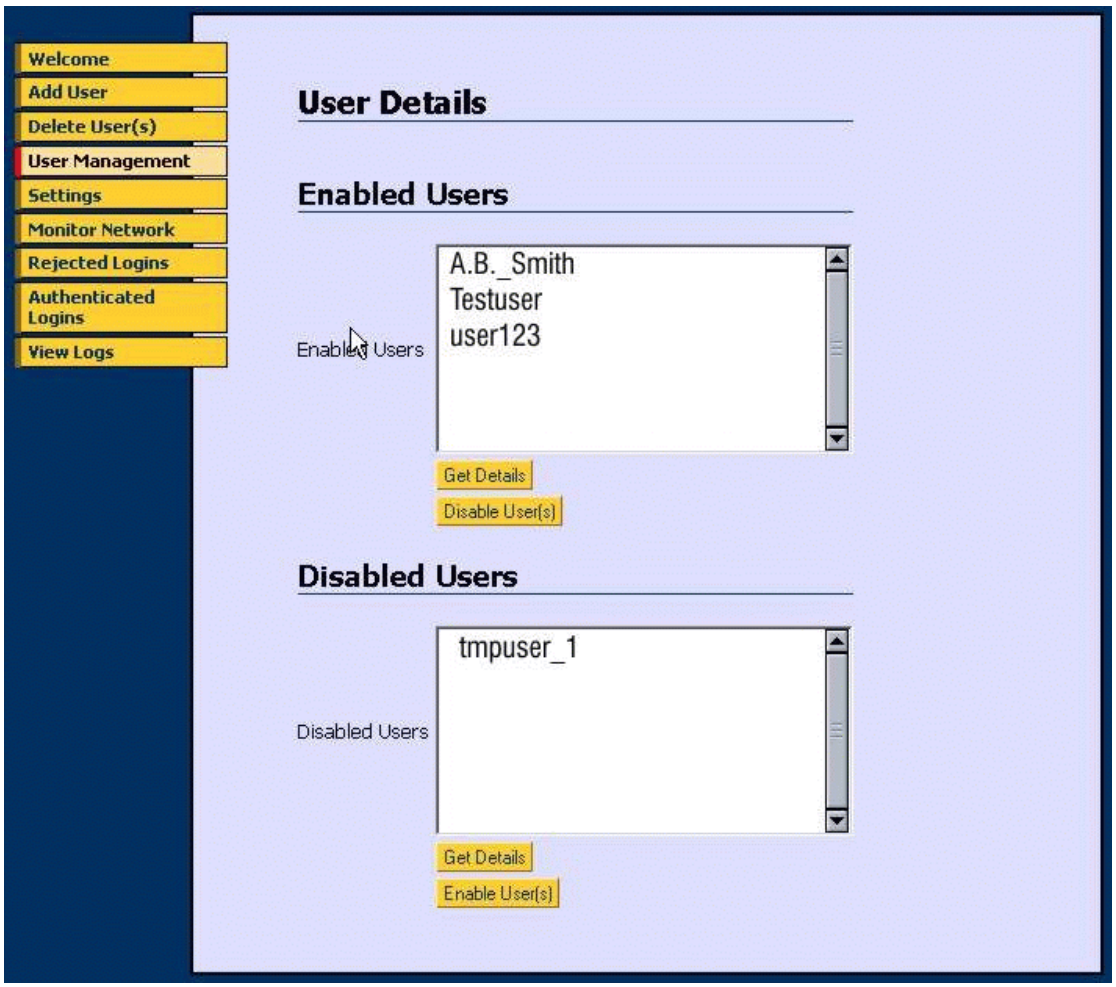
- Select the user who is to be deleted from the system by clicking on his name in the displayed window.

- Click on the Delete button to remove the user’s record from the WLAN-Minder system.

NOTE: If the requirement is only to temporarily inhibit a user from accessing the LAN (i.e. for maintenance purposes) then the [**User Management**] option should be used as described in section 5.2.

5.2 Managing Users.

If it is only required to temporarily enable or disable users, then the [**User Management**] menu may be used for this purpose. This management feature does not remove users from the system.



The [**User Management**] menu displays two windows, one listing the currently enabled users who are allowed access to the network, and the second window listing users that are currently denied access.

To obtain more information about a user:

- Select the user by clicking on the user's displayed name.
- Click the [**Get Details**] button.
- The information from the User's certificate is then displayed to the Administrator.

To **Enable** a disabled user:

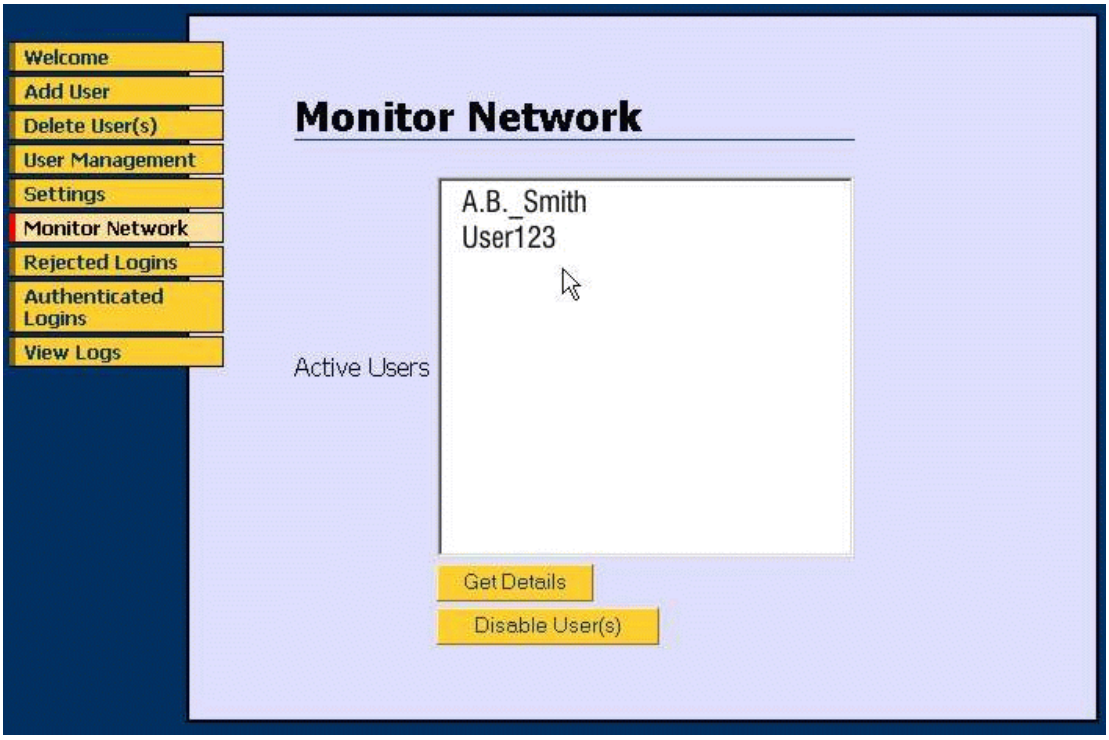
- Select the user from the DISABLED window by clicking on the users displayed name.
- Click the [**Enable User**] button.
- The selected user status will change to “Enabled” and his name will now appear in the ENABLED Window.

To **Disable** an enabled user:

- Select the user from the ENABLED window by clicking on the user’s displayed name.
- Click the [**Disable User**] button.
- The selected user status will change to “Disabled” and his name will now appear in the DISABLED Window.

5.3 Monitoring the Network.

The WLAN-Minder will allow an Administrator to view the identity of the users who are currently authenticated on the network in real time. To view these users the [**Monitor Network**] option should be chosen from the "Welcome" menu. The users listed in the displayed window are those users currently authenticated in the Wireless Network.



To obtain more information about a user:

- ▣ Select the user by clicking on the user's displayed name.
- ▣ Click the [**Get Details**] button.
- ▣ The information from the User's certificate is then displayed to the Administrator.

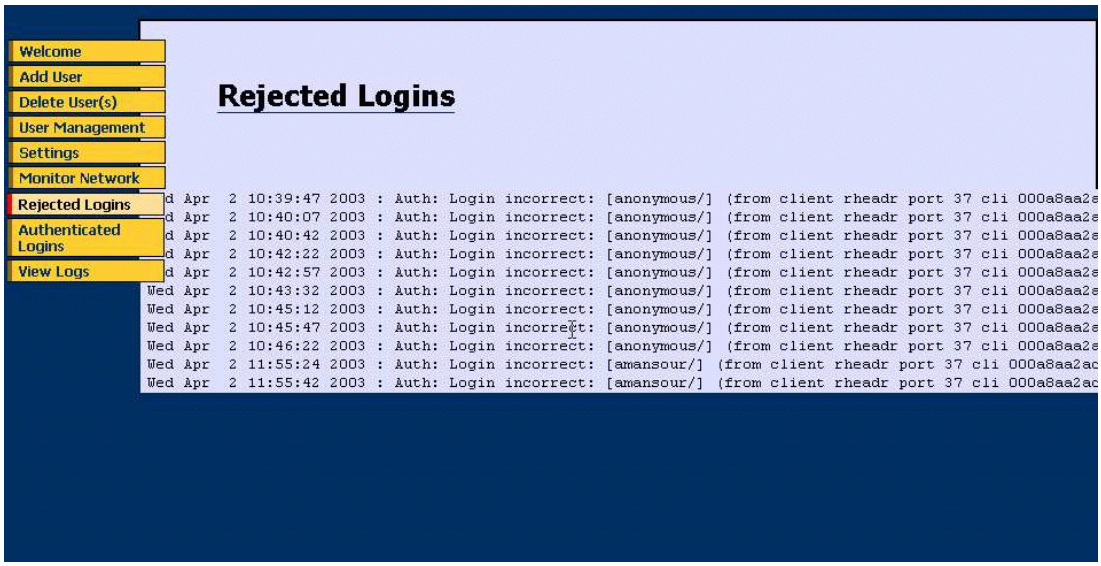
To **Disable** an authenticated user:

- Select the user from the window by clicking on the user's displayed name.
- Click the [**Disable User**] button.

NOTE: **This does NOT log the user off from the network.** It flags the user as disabled so that the next time he attempts to login or re-authenticate to the network he will be denied access.

5.4 Monitoring Logins.

The Administrator may view a history of the Authenticated and Rejected logins that have been attempted by users of the WLAN-Minder system. These logs may be viewed by clicking on the [**Rejected Logins**] or [**Authenticated Logins**] buttons displayed on the "Welcome" screen.



Rejected Login information.

- **Date:** Login was attempted
- **Time:** Login was attempted
- **Reason for failure**: i.e. Login Incorrect
- **User name**: The name of the user attempting the connection (e.g. *anonymous*)
- **Client:** Refers to the Access Point name making the request to the WLAN-Minder (e.g. "*rheadr*")
- **MAC**: The Media Access Control of the user's WLAN adapter card attempting the connection to the LAN. (e.g. *000a8aa2ac08*)

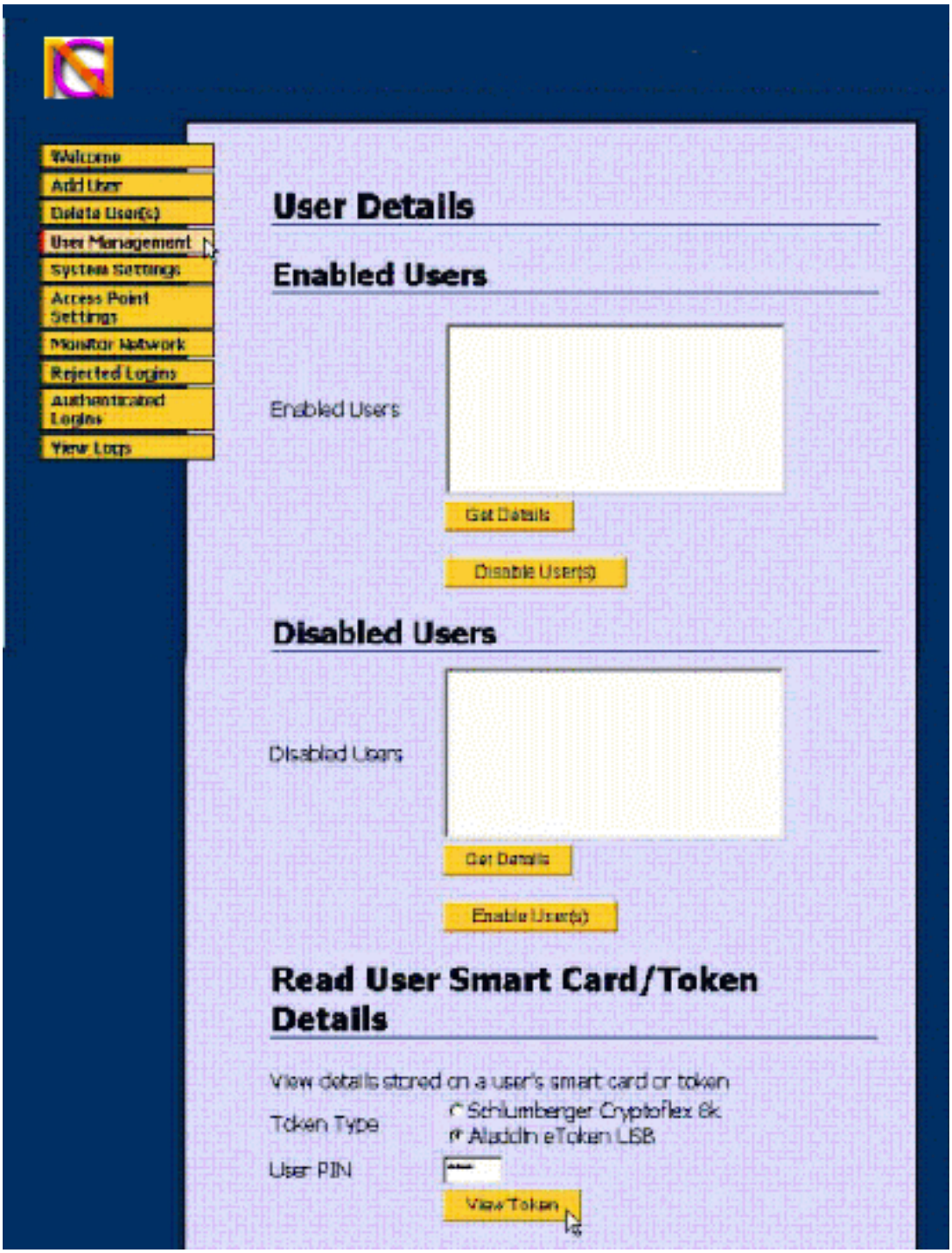
Authenticated Login information.

- **Date:** Date when Login was attempted
- **Time:** Time when Login was attempted
- **User name**: The name of the authenticated user

5.5 Viewing a User Token.

The Administrator may view certain information on a user's smart card or eToken. The information displayed will indicate the user's name and list the Access Points he has rights to associate with.

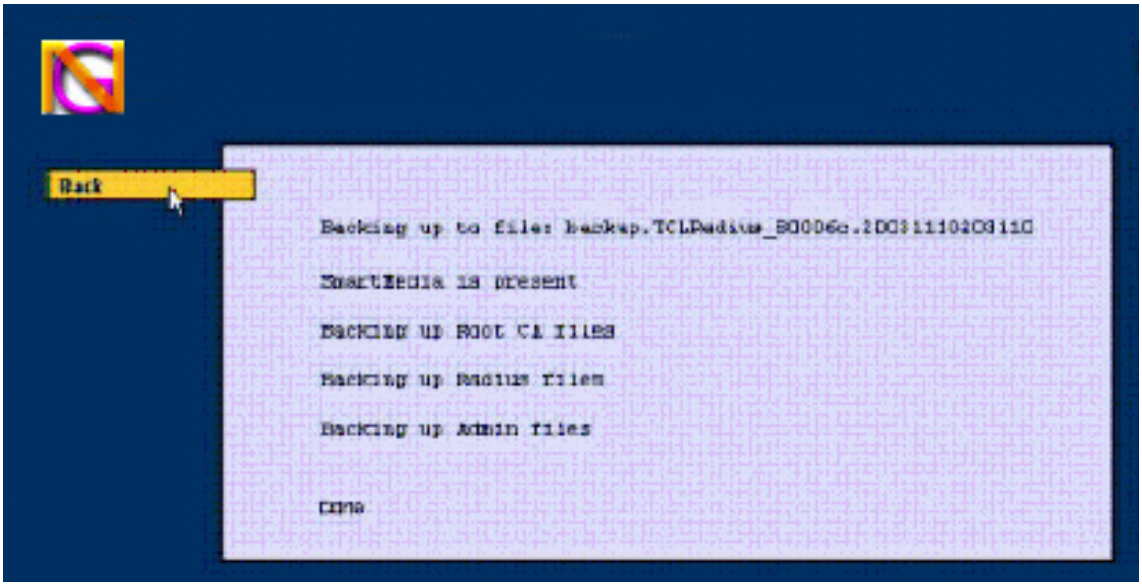
Select [**User Management**] option of the system menu. Select the type of token that is to be read, (either smart card or eToken). At the "User PIN" prompt, enter the PIN for the selected token, then click the [**View Token**] button for the information to be displayed.



5.6 Backing Up the WLAN-Minder Configuration Files.

- Insert a 32MB Smart Media device into the slot on the rear panel of the WLAN-Minder unit. (See {11} Section 1.4)
- **Reset the WLAN-Minder unit**. Either cycle the power Off/On, or depress and release the Reset switch on the rear panel of the WLAN-Minder unit (See {12} Section 1.4).
- Login in to the WLAN-Minder unit using the Administrator smart card.
- Select the [**System Settings**] option from the main menu.
- Scroll down the screen to the Backup/Restore section.
- Click on the [**Backup System to Smart Media**] button to start the backup process.

- Once the backup process has completed, the **[Back**] button should be clicked to return control to the main system menu.



The WLAN-Minder supports a Smart Media interface, allowing the configuration files for the server to be backed up. The backup files stored on the smart media device contain the confidential security information of the WLAN-Minder, therefore care should be taken to store the Smart Media backups in a secure location.

The following figures give a rough guide to the storage requirements for a system back up.

25 Users	Backup size 1.5Mb
50 Users	Backup size 1.8Mb
100 Users	Backup size 2.2Mb

A 32MB Smart Media device is capable of storing a number of backup images.

5.7 Restoring a WLAN-Minder Configuration.

- Insert the 32MB Smart Media device that contains the configuration files into the slot on the read panel of the WLAN-Minder unit. (See {11} Section 1.4)

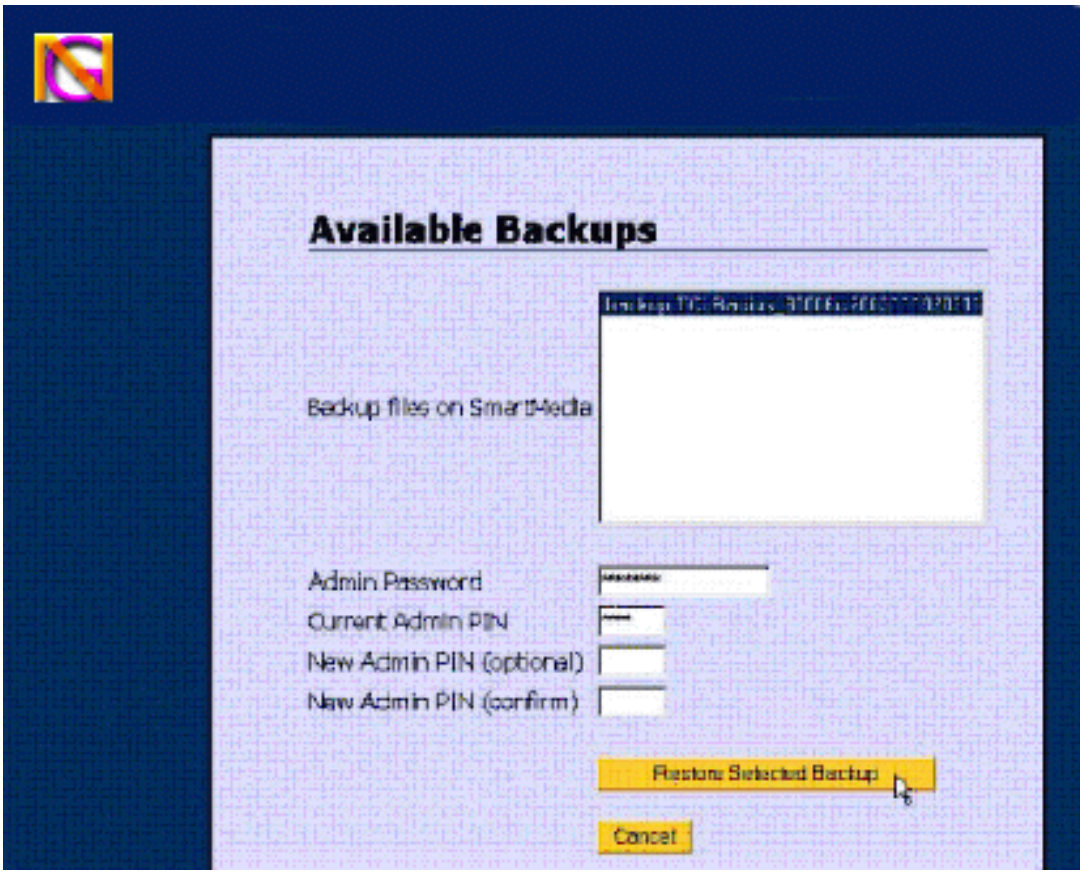
- **Reset the WLAN-Minder unit**. Either cycle the power Off/On, or depress and release the Reset switch on the rear panel of the WLAN-Minder unit (See {12} Section 1.4).

- Login in to the WLAN-Minder unit using the Administrator smart card.

- Select the [**System Settings**] option from the main menu.

- Scroll down the screen to the Backup/Restore section.

- Click on the [**Restore System from Smart Media Card**] button.



- A list of the backup files present on the Smart Media card is displayed.

Each backup is labelled with the WLAN-Minder name that the backup was made from and the date and time the backup was made.

E.g. **NGLMinder_80006c_20031110203145**

CCYYMMDDhhmmss

CC	Century
YY	Year
MM	Month
DD	Day
hhmmss	Hours:Mins:Secs

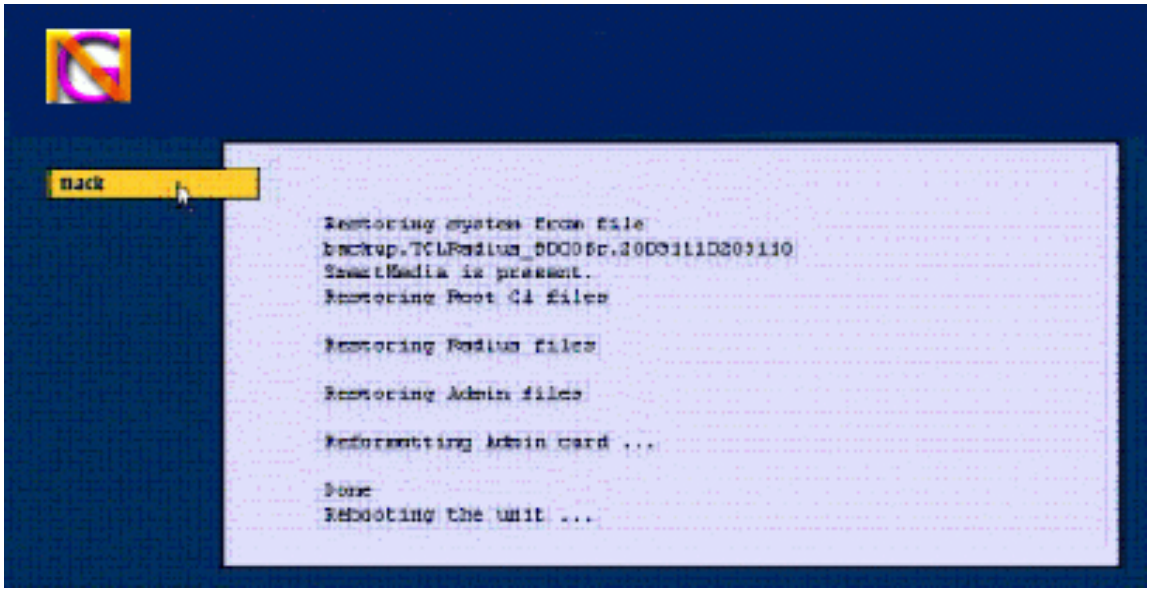
- **WARNING** **Restoring a configuration file will DELETE all configuration and USER files currently stored on the WLAN-Minder unit.**

- The administrator should select the backup file to restore by clicking on the appropriate file, so that it becomes highlighted.

- The administrator must then enter the Administrator Password, and the PIN for the administrator card currently inserted in the Admin card slot of the WLAN-Minder unit. (An option is given to the Administrator to change the PIN of the Admin card if required).

- Click the [**Restore Selected Backup**] button to start the restore process.

NOTE: **The restore process will delete all user files currently on the WLAN-Minder unit and will replace them by the user files read from the backup media.**



- ▣ Once the backup process is completed the unit will restart itself.

- ▣ It is recommended that the administrator then **delete the log files** on the restored system, so that the log file presents a valid status history of the newly restored unit.

5.8 Changing the System Time / Date.

Care must be taken when changing the system time and date. Certificates are issued to users with a specific expiry date. The WLAN-Minder unit uses its own clock to determine whether a user's certificate has expired or not. Thus, if an invalid date/time is set (i.e. an incorrect year) it may cause ALL users to be rejected, as the WLAN-Minder would believe that all user certificates had expired according to the date currently set in its calendar/clock.

- To update the time or date the administrator must login to the WLAN-Minder unit with their administrator smart card.
- From the main system menu select the [**System Settings**] option.
- Scroll down the screen to the [**Date and Time**] section.

- ALL the date and time parameters MUST be entered, each parameter being just TWO Digits.

Day:	01....28, 29, 30, 31
Month:	01....12
Year:	03....99
Hours:	00....23
Minutes:	00....59

- With all the parameters entered click the [**Update Time**] button to reset the Real Time Clock of the WLAN-Minder Unit.

6 Appendices

6.1 Hardware Specification

Processor	ARM940T		
Memory:	4MBytes FLASH EEPROM 8M Bytes NAND EEPROM 32M Bytes SDRAM		
Network:	LAN Port	10/100Base T RJ45 (Full Duplex)	
	WLAN Port	*10/100Base T RJ45 (Full Duplex)* [**OPTIONAL N/A**]	
Network LAN Status:	Link	GREEN LED	On indicates link to hub/switch is established.
	Data	YELLOW LED	On indicates presence of traffic on LAN port.
WLAN Status:	*Link*	*GREEN LED*	*On indicates link to hub/switch is established.*
	Data	*YELLOW LED*	*On indicates presence of traffic on LAN port.* [**OPTIONAL N/A**]
Serial I/O	RS232 BIOS Admin Port.		
	RS232 Interface:	RxD, TxD, RTS, CTS, Gnd ESD Protection on I/O lines.	
	Baud Rate:	57600	
	Data Bits	8	
	Stop Bits	1	
	Flow Control	None	
USB Device	*v1.1*	[**OPTIONAL N/A**]	
System Indicators:	Power	RED LED	Lit when 5VDC power is present at the unit.
Administrator Smart card		Bi Colour LED	GREEN Flashing - prompt for user to insert Smart card. RED - Indicates Card inserted and Power applied.
User Smart card		Bi Colour LED	GREEN Flashing - prompt for user to insert Smart card. RED - Indicates Card inserted and Power applied.

Administrator USB Socket	GREEN LED	Flashing - prompt for user to insert eToken.
User USB Socket	GREEN LED	Flashing - prompt for user to insert eToken.
Smart Card Interfaces:	Administrator	ISO 7816 compliant
	User	ISO 7816 compliant
USB eToken Interfaces:	Administrator	USB v2 (Low & High speed supported)
	User	USB v2 (Low & High Speed supported)
SmartMedia:	Supports up to 32MB devices.	
Real Time Clock:	Battery backed up Real Time Clock storing date and time. Y2K compliant.	
Power Connector:	DC Power Jack 2.1mm	
Input Supply Voltage:	+5VDC	
Power:	6500mW Typical	
Power Adapter:	100 ~ 240VAC @ 0.2A	Output 5VDC @ 1.7A
Unit Size:	195mm x 135mm x 48mm (Overall Dimensions)	
Unit Weight:	1.52Kg	
Packaging Size:	265mm x 270mm x 130mm	

6.2 Connector Pin-out.

RS232 9-Way D-Type Male Pin Out (Administrator RS232 Connector)					
Pin	**Signal**	**I/O**	**Pin**	**Signal**	**I/O**
1	n/c		6	n/c	
2	Receive Data	I/P	7	Request To Send	O/P
3	Transmit Data	O/P	8	Clear To Send	I/P
4	n/c		9	n/c	
5	Signal Ground	—			

10/100Base-T RJ45 Connector Pin Out					
Pin	**Signal**	**I/O**	**Pin**	**Signal**	**I/O**
1	Transmit (+)	O/P	5	n/c	
2	Transmit (-)	O/P	6	Receive (-)	I/P
3	Receive (+)	I/P	7	n/c	
4	n/c		8	n/c	

6.3 BIOS Administrator cable [NGL-210] pin-out.

RS232 Administration Cable NGL-210 Pin Out.					
9-Way D-Type Female				9-Way D-Type Female	
DCD	----->	1	<---------->	1 <-----	DCD
RxD	|	2	<---------->	3 |	TxD
TxD	|	3	<---------->	2 |	RxD
DTR	|	4	<---------->	6 <-----	DSR
Gnd	|	5	<---------->	5	Gnd
DSR	----->	6	<---------->	4	DTR
RTS		7	<---------->	8	CTS
CTS		8	<---------->	7	RTS
RI		9	n/c	9	RI

6.4 Windows Hyper-Terminal Setup for BIOS Administration.

- At the PC run the Hyper Terminal Program (or similar terminal emulator program).
- Click the **[Start]** button through to:

  Programmes–>Accessories–>Communications–>HyperTerminal
- Enter a name for the connection i.e. "**WLAN-Minder**"
- Select the correct COM port through which to establish the connection.
- Set the Serial Port Parameters to:

Bits per Second	**57600bps**
Data Bits	**8**
Parity	**None**
Stop Bits	**1**
Flow Control	**None**

- Once the above parameters have been set click the [OK] button.
- Hyper-Terminal is now configured with the correct parameters and is ready to operate as a terminal emulator for the WLAN-Minder unit.

6.5 Unblocking a Blocked Smart Card / eToken.

- Please contact your re-seller or distributor to obtain the necessary software required to unblock a smart card or eToken.

6.6 Two Character Country Codes.

AD Andorra
AE United Arab Emirates
AF Afghanistan
AG Antigua and Barbuda
AI Anguilla
AL Albania
AM Armenia
AN Netherland Antilles
AO Angola
AQ Antarctica
AR Argentina
AS American Samoa
AT Austria
AU Australia
AW Aruba
AZ Azerbaidjan

BA Bosnia-Herzegovina
BB Barbados
BD Banglades
BE Belgium
BF Burkina Faso
BG Bulgaria
BH Bahrain
BI Burundi
BJ Benin
BM Bermuda
BN Brunei Darussalam
BO Bolivia
BR Brazil
BS Bahamas
BT Buthan
BV Bouvet Island
BW Botswana
BY Belarus
BZ Belize

CA Canada
CC Cocos (Keeling) Isl.
CF Central African Rep.
CG Congo
CH Switzerland
CI Ivory Coast
CK Cook Islands
CL Chile
CM Cameroon
CN China
CO Colombia
CR Costa Rica
CS Czechoslovakia
CU Cuba
CV Cape Verde
CX Christmas Island
CY Cyprus
CZ Czech Republic

DE Germany
DJ Djibouti
DK Denmark
DM Dominica
DO Dominican Republic
DZ Algeria

EC Ecuador
EE Estonia
EG Egypt
EH Western Sahara
ES Spain
ET Ethiopia

FI Finland
FJ Fiji
FK Falkland Isl.(Malvinas)
FM Micronesia
FO Faroe Islands
FR France
FX France (European Ter.)

GA Gabon
GB Great Britain (UK)
GD Grenada
GE Georgia
GH Ghana
GI Gibraltar
GL Greenland
GP Guadeloupe (Fr.)
GQ Equatorial Guinea
GF Guyana (Fr.)
GM Gambia
GN Guinea
GR Greece
GT Guatemala
GU Guam (US)
GW Guinea Bissau
GY Guyana

HK Hong Kong
HM Heard & McDonald Isl.
HN Honduras
HR Croatia
HT Haiti
HU Hungary

ID Indonesia
IE Ireland
IL Israel
IN India
IO British Indian O. Terr.
IQ Iraq
IR Iran
IS Iceland
IT Italy

JM Jamaica
JO Jordan
JP Japan

KE Kenya
KG Kirgistan
KH Cambodia
KI Kiribati
KM Comoros
KN St.Kitts Nevis Anguilla
KP Korea (North)
KR Korea (South)
KW Kuwait
KY Cayman Islands
KZ Kazachstan

LA Laos
LB Lebanon
LC Saint Lucia
LI Liechtenstein
LK Sri Lanka
LR Liberia
LS Lesotho
LT Lithuania
LU Luxembourg
LV Latvia
LY Libya

MA Morocco
MC Monaco
MD Moldavia
MG Madagascar
MH Marshall Islands
ML Mali
MM Myanmar
MN Mongolia
MO Macau
MP Northern Mariana Isl.
MQ Martinique (Fr.)
MR Mauritania
MS Montserrat
MT Malta
MU Mauritius
MV Maldives
MW Malawi
MX Mexico
MY Malaysia
MZ Mozambique

NA Namibia
NC New Caledonia (Fr.)
NE Niger
NF Norfolk Island
NG Nigeria
NI Nicaragua
NL Netherlands
NO Norway
NP Nepal
NR Nauru
NT Neutral Zone
NU Niue
NZ New Zealand
OM Oman

PA Panama
PE Peru
PF Polynesia (Fr.)
PG Papua New
PH Philippines
PK Pakistan
PL Poland
PM St. Pierre & Miquelon
PN Pitcairn

PT Portugal
PR Puerto Rico (US)
PW Palau
PY Paraguay

QA Qatar

RE Reunion (Fr.)
RO Romania
RU Russian Federation
RW Rwanda

SA Saudi Arabia
SB Solomon Islands
SC Seychelles
SD Sudan
SE Sweden
SG Singapore
SH St. Helena
SI Slovenia
SJ Svalbard & Jan Mayen Is
SK Slovak Republic
SL Sierra Leone
SM San Marino
SN Senegal
SO Somalia
SR Suriname
ST St. Tome and Principe
SU Soviet Union
SV El Salvador
SY Syria
SZ Swaziland

TC Turks & Caicos Islands
TD Chad
TF French Southern Terr.
TG Togo
TH Thailand
TJ Tadjikistan
TK Tokelau
TM Turkmenistan
TN Tunisia
TO Tonga
TP East Timor
TR Turkey
TT Trinidad & Tobago
TV Tuvalu
TW Taiwan
TZ Tanzania

UA Ukraine
UG Uganda
UK United Kingdom
UM US Minor outlying Isl.
US United States
SY Uruguay
KZ Uzbekistan

VA Vatican City State
VC St.Vincent & Grenadines
VE Venezuela
VG Virgin Islands (British)
VI Virgin Islands (US)
VN Vietnam
VU Vanuatu

WF Wallis & Futuna Islands
WS Samoa

YE Yemen
YU Yugoslavia

ZA South Africa
ZM Zambia
ZR Zaire
ZW Zimbabwe

7 References

7.1 WLAN-Minder Workstation Client Users Manual. Document NGCd000421

NOTES:

NOTES: